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ENVIRONMENTAL REQUIREMENTS AND INTERNATIONAL TRADE

Background note by the UNCTAD secretariat

This report examines trade and development effects of environmental requirements on developing countries, paying special attention to the conditions and needs of small and medium-sized enterprises. It takes into account (a) characteristics of and trends in environmental measures, as well as (b) constraints faced by developing countries in responding to environmental requirements, for example in terms of infrastructure, access to technology and institutional capacities. The report also examines market access and competitiveness issues, potential trading opportunities for products from developing countries and developmental effects. It proposes for the consideration of experts possible policies and measures for assisting developing countries in enhancing their capacities to respond to environmental requirements and take advantage of new trading opportunities. Some of these proposals could be further explored by the Commission. Furthermore, the report looks into some relevant issues of key concern to developing countries in the WTO Doha work programme and proposes to link discussions with the preparatory process for UNCTAD XI.

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INTRODUCTION

A. Background

1. The UNCTAD X Plan of Action called upon UNCTAD to examine "the potential trade and developmental effects and opportunities of environmental measures, taking into account the concerns of developing countries, particularly as regards potential effects on small and medium-sized enterprises (SMEs)."[1] The Doha Ministerial Declaration, in paragraph 32(i), called upon the WTO Committee on Trade and Environment, to give particular attention to "the effect of environmental measures on market access, especially in relation to developing countries, in particular the least-developed among them....". In addition, the preparatory process of UNCTAD XI is expected , among other things, to look at "the different elements that lead to the competitiveness of developing countries -- market access and fair trade rules, technology, financing and investment, diversification and productive capacity -- and how they all interact".[2]

2. In this context, experts are invited to examine both *adverse* and *beneficial* trade and development effects of environmental requirements, emphasizing implications for SMEs. Subsequently, they could seek: (i) to identify policies to strengthen capacities of developing countries, in particular for their SMEs, to better respond to environmental requirements and benefit from opportunities in their export and domestic markets; and (ii) to bring to the attention of the Commission possible actions at the national and regional levels, by the international community and UNCTAD, to assist developing countries in enhancing their capacities to respond to environmental requirements and take advantage of new trading opportunities. The Meeting could also draw lessons regarding the role of environmental policies in enhancing international competitiveness and suggest avenues of work in preparation of UNCTAD XI.

3. This report is organized as follows. Section I briefly describes environmental requirements, certain trends and concepts, as well as major constraints faced by developing countries. Section II highlights developing countries' concerns in the area of market access. Section III identifies possible positive links between environmental measures and competitiveness, and describes potential trading opportunities for developing countries. Section IV examines developmental implications. Section V identifies policies and measures that can be adopted at the national and/or regional level and by the international community, including in the context of the WTO Doha programme of work, to assist developing countries in responding to environmental requirements and taking advantage of new trading opportunities. Section VI lists questions that experts are invited to discuss.

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[1] UNCTAD X Plan of Action, paragraph 147, fourth bullet. In addition, paragraph 146 (second bullet) calls for special attention to be paid to "enhancing understanding of the economic and social implications of trade measures for environmental purposes for countries at different levels of development, including the effects of environmental requirements on developing countries' exports". TD/386, 18 February 2000.

[2] Statement by Mr. Rubens Ricupero to the Commission on Trade in Goods and Services, and Commodities at its sixth session. http://www.unctad.org/sg/statements.en.htm

B. Earlier and ongoing work in UNCTAD

4. Trade effects of environmental requirements have been addressed in previous UNCTAD meetings, including, for example, the Trade and Development Board (1994), the Ad Hoc Working Group on Trade, Environment and Development (June and November 1995)[3] and a seminar hosted by the Government of Finland in preparation of UNCTAD IX (1996).

5. Under the joint UNCTAD/UNDP project on Reconciling Trade and Environment, a series of country case studies on trade and environment linkages were carried out (1993-1996) by local research institutes in developing countries.[4] UNCTAD/UNDP country projects in India and Viet Nam also addressed the trade and competitiveness effects of environmental requirements in international markets, as have a number of interregional projects, such as the recently concluded project on Standards and Trade.[5] Issues related to the implications of environmental requirements for market access and trading opportunities for environmentally preferable products (EPPs) will continue to be addressed under new technical cooperation projects.[6]

I. ENVIRONMENTAL REQUIREMENTS

6. Environmental characteristics of products and processes are increasingly becoming a factor influencing product quality and international competitiveness. To be able to compete successfully in international markets, developing country producers must examine and, to the extent possible, anticipate developments in international markets for products of key export interest to them. They must also be able to meet health and environment-related regulations to gain market access. Where voluntary environmental (and sanitary) requirements have become an integral part of product quality, developing country producers need to be able to meet such requirements to realize customary market prices; meeting such requirements leads neither to price premiums nor to higher market shares.

A. Types of environmental requirements

7. Environmental requirements with potential effects on market access include standards (which are voluntary) and technical regulations (which are mandatory), labelling requirements (either mandatory or voluntary, such as eco-labelling), packaging regulations

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[3] See UNCTAD reports TD/B/WG.6/2, TD/B/WG.6/5, TD/B/WG.6/6, TD/B/WG.6/9 and TD/B/WG.6/10.

[4] Veena Jha, Anil Markandya and René Vossenaar, *Reconciling Trade and the Environment: Lessons from Case Studies in Developing Countries*, Edward Elgar, Cheltenham (United Kingdom), Northampton (United States), 1999.

[5] A workshop on Standards and Trade was held in Geneva on 16 and 17 May 2002. Papers and presentations are available on: http://www.unctad.org/trade_env/

[6] UNCTAD and the Foundation for International Environmental Law and Development (FIELD) are initiating a new project on Building Capacity for Improved Policy Making and Negotiation on Key Trade and Environment Issues. UNCTAD and UNEP are supporting country projects through the UNEP-UNCTAD Capacity Building Task Force on Trade, Environment and Development (CBTF).

and certain sanitary and phytosanitary (SPS) measures.[7] Most of these require proof of compliance, i.e. conformity assessment, including certification. In fact, an important "certification service sector" has emerged in many developed countries in recent years.[8]

8. Standards and regulations refer, for example, to product content (e.g. limit values for certain substances); banned substances; recycled content; energy efficiency and recyclability; degradability; and other product characteristics. Environmental product taxes and charges can be based on some characteristics of the product (e.g. on the sulphur content in mineral oil) or on the product itself (e.g. mineral oil). Take-back obligations are aimed at encouraging re-use and recycling, and related compliance costs may induce more environmentally conscious product development.

9. Informal (non-government) requirements can play an important role, and their use has been increasing. These include, for example, buyers' requirements, including supply-chain management by transnational corporations (TNCs) and supermarket chains, as well as actions by non-governmental organizations (NGOs).

10. Environmental requirements are also applied in the context of certain multilateral environmental agreements (MEAs). In the WTO context, such measures have been notified as import prohibitions, quantitative restrictions or non-automatic licensing.

B. Trends in environmental requirements

11. Environmental requirements are becoming more frequent. According to the WTO Environmental Database (EDB), which contains information on Government environment-related measures or provisions notified under WTO agreements, the share of environment-related notifications under the WTO Agreement on Technical Barriers to Trade increased from 9.7 per cent in 1991 to 15.6 per cent in 2000, although dropping to 11.1 per cent in 2001.[9]

12. Environmental (and health-related) requirements are becoming more stringent and complex. For example, threshold limits for certain substances may become so tight that they are no longer detectable with existing equipment available in developing countries. Standards and regulations concerning maximum residue levels (MRLs) for pesticides[10] and other

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[7] It is sometimes difficult to draw a clear distinction between SPS measures for environmental objectives and SPS measures for food safety purposes. In some cases SPS measures that are taken for food safety objectives in the importing country are the result of environmental problems in the exporting countries. In the context of the Environmental Database (EDB), the WTO secretariat has taken the view that only part of the SPS measures are directly related to the environment. Most measures for environmental protection are addressed by the TBT Agreement or Article XX of GATT.

[8] The activities of testing laboratories in the United States, which carry out conformity assessment evaluations, have been expanding by 13.5 per cent a year. See National Research Council, *Standards, Conformity Assessment, and Trade*, Washington D.C., National Academy Press, 1995.

[9] WTO, WT/CTE/EDB/131/corr.1, June 2002. Environmental Database for 2001.

[10] European Commission Directive 2002/42/EC on fixing of maximum levels for pesticide residues (bentazone and pyridate) in and on cereals, foodstuffs of animal origin and certain products of plant origin, including fruit and vegetables, OJ L134, pp. 29-39, 17 May 2002, and Commission Directive 2002/63/EC on

chemicals are an issue of concern to developing countries. An increasing number of hazardous substances are banned, for example in the food, textiles and electronics sectors. An example can be found in mercury regulations in the United States,[11] which have also influenced mercury programmes in Canada.[12] New legislation is also emerging concerning traceability. For example, EU legislation on the Common Organisation of the Markets in Fishery and Aquaculture Products, effective as of 1 January 2002, requires exporters of fish and fishery products to label consignments (or accompany them by a document) identifying the species name, production method and catch area.[13] Such requirements may be difficult to meet for developing countries, as these countries face major difficulties in implementing sophisticated traceability systems.

13. Meeting an increasing number of product-content-related standards and regulations requires implementing changes in processes and production methods. This concerns, for instance, thresholds for heavy metal or hazardous chemicals use or residues in products. In some cases, specific product characteristics, for instance mandatory recycling, are supplemented by product-content requirements, for instance the restriction of certain hazardous substances in the final product.[14]

14. There appears to be a move towards shifting emphasis from risk *management* to risk *minimization* or *avoidance*. In several countries, consumers and NGOs are increasingly pushing for zero-tolerance levels for environmental and health risks. For instance, besides producers of chemicals, anyone producing or importing metals, metal compounds and alloys in the European Union after 2005 will be required to provide the European authorities with a proper assessment of these materials, following the adoption of tougher chemicals safety rules in 2001. These imply a reversal of the burden of proof, requiring industry (producers, users and importers) to test, assess and take responsibility for risk management of all chemicals on the European market in order to ensure their safe use.[15]

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establishing Community methods of sampling for the official control of pesticide residues in and on products of plant and animal origin, OJ L 187, pp. 30-43.

[11] Restrictions on mercury-containing products, once used sparingly by the federal government, are increasing rapidly at the state level. States are beginning to move beyond strictly health-based concerns associated with particular products, and are looking instead to the waste disposal problems associated with mercury-containing products and their impact on the environment. See United States Environmental Protection Agency, mercury website: http://www.epa.gov/mercury/index.html

[12] Under its Canada Wide Standards (CWS) programme, Canada has selected a number of products and industry sectors for targeted mercury reduction.

[13] Article 4 of Council Regulation (EC) 104/2000, OJ L17, 21.1.2000.

[14] Such an approach has been taken for the proposed EU Directive on Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment which was tabled in tandem with the Directive on (sound collection and recycling of) Waste Electrical and Electronic Equipment (WEEE) (COM(2000)347 fin., 13.6.2000), to ease recycling from a technical and economic point of view.

[15] The new system for assessing hazardous chemicals and metals is known as the "REACH" system (Registration, Evaluation and Authorization of Chemicals). For more information, see: European Commission, White Paper on a Strategy for a Future Chemicals Policy, COM(2001) 88 final, and Stakeholders' conference on the Commission's White Paper, accessible at www.europa.eu.int/comm/environment/chemicals/index.htm.

15. Increasing emphasis is now being placed on promoting *product policies* and *producer responsibility,*[16] based on instruments such as take-back obligations; non-regulatory measures, including information-based instruments and self-regulation; and life-cycle analysis. Such policies are being implemented, for example, with regard to automobiles, batteries,[17] electrical and electronic equipment[18] and packaging.[19] A properly designed EPR policy can be a driving force for waste avoidance and associated pollution reduction.[20] However differences in approaches across countries have been an issue of some concern.[21] EPR policies have emerged in particular in Europe, but their use in non-European countries is growing. For example, the state of Rio de Janeiro, Brazil, has enacted a stringent plastic packaging take-back law. A similar, more stringent bill is progressing through the Brazilian federal legislature. In Canada (Quebec), Bill 90, adopted in December 1999, creates the legal authority for Quebec regulators to order manufacturers and suppliers to pay for recycling programs.[22] In the United States, product stewardship approaches, led by the private sector, are becoming more important, for example in the battery and electronics sector.[23] Australia has also been considering a product stewardship strategy in the electrical and electronics

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[16] It has been observed that Producer Responsibility, also known as *Extended Producer Responsibility (EPR), Product Take-Back* or *Product Stewardship,* is one of the fastest growing areas of business concern over environmental risk, legal compliance and corporate responsibility (http://www.cfsd.org.uk/seeba/). See also: http://www.cfsd.org.uk/ipp-epd/. EPR has been defined as "An environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle. There are two key features of EPR policy: (1) the shifting of responsibility (physically and/or economically, fully or partially) upstream to the producer and away from municipalities, and (2) providing incentives to producers to introduce environmental considerations into the design of the product. Organization for Economic and Cooperative Development. Working Party on Pollution Prevention and Control. *Extended Producer Responsibility: A Guidance Manual for Governments.* October 2000.

[17] For example, the US Environmental Protection Agency (USEPA) has reclassified nickel cadmium (Ni-Cd) batteries from a non-hazardous to a regulated hazardous waste. Existing US federal and state regulations require businesses and agencies to manage their used Ni-Cd batteries properly. Industry set up a National Charge Up To Recycle Programme that now also covers Canada. Effective 1 July 2000, Norwegian retailers, importers, and producers of rechargeable batteries are responsible for their take-back, collection, and safe disposal. Although the focus is on Ni-Cd batteries, the regulation covers all rechargeable batteries. Under the agreement, retailers, importers, and producers have agreed to set up and fund a nationwide return and collection system.

[18] The proposed EU *Waste Electrical and Electronic Equipment* (WEEE) Directive obliges companies to take back several categories of electrical and electronic equipment after use. This provides incentives to domestic and foreign producers exporting to the European Union to modify the design of their products. Recently, there have also been discussions on a so-called *Eco Design* Directive, which focuses on the reduction of environmental impact of electrical and electronic equipment throughout the lifecycle.

[19] See, for example, Environment Canada http://www.ec.gc.ca/epr/en/index.cfm and United States Environmental Protection Agency http://www.epa.gov/epr/.

[20] Environment Canada. See http://www.ec.gc.ca/epr/en/benefits.cfm, including for further potential benefits.

[21] Different approaches amongst Member States have led to a call for harmonized measures across the EU in order to avoid market distortions and other problems that might arise from different policy approaches. As a result, the EU Environment Directorate (DGXI) is proposing an Integrated Product Policy (IPP) as a basis for a common framework.

[22] The paint industry has already taken steps toward establishing a paint take-back programme, and negotiations for take-back of used oil and batteries are ongoing.

[23] A National Electronics Product Stewardship Initiative (NEPSI) was launched in San Francisco in June 2001, with representatives from electronics manufacturers, government agencies, environmental groups and others to develop a joint plan in the United States for managing used electronics. Private sector representatives have been discussing possibilities for a national take-back programme

sector.[24] In Japan, manufacturers must, since April 2001, recycle appliances, televisions, refrigerators, and air conditioners.

16. The private sector is increasingly imposing environment-related requirements on suppliers. Thus, voluntary standards, codes and benchmarks are proliferating, often as part of Corporate Social Responsibility (CSR) or risk management initiatives. Various initiatives combine environmental issues with social issues. In the food sector, for example, the Euro Retailer Produce Working Group (EUREP), which includes the leading supermarkets in Europe, particularly in the United Kingdom, launched its protocol on Good Agricultural Practice (EUREPGAP) for horticultural products in 1999, originally in response to food safety concerns. EUREPGAP seeks to provide a framework for independent verification of minimum social, environmental and food safety standards throughout the supply chain for the production of fresh fruits, vegetables and flowers.[25] Such measures may affect companies in developing countries, for example on account of the need to collect information to respond to questionnaires or site visits. They may also create a bias towards the operation of large firms, and small firms may be crowded out by large firms and transnational corporations (TNCs). At the same time, supply chain management can offer opportunities for private sector cooperation.

II. IMPLICATIONS FOR MARKET ACCESS

A. Concerns of developing countries

17. Developing countries have been concerned that increasingly stringent environmental product standards and regulations, in particular in the developed countries, could adversely affect their market access. Thus, there has been concern over "green protectionism" and over the need to adjust products and production processes to meet the environmental regulations of the developed countries, which are not necessarily the priorities of the developing countries.

18. *A priori,* there are grounds for concern in the case of many developing countries. First, environmental regulations in the developed countries are emerging in a number of sectors where developing countries have become particularly competitive, such as fishery[26] and forestry products,[27] leather,[28] textiles,[29] and certain consumer products.[30] Second, SMEs,

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[24] Environmental Australia, Industrial Ecology Unit, Sustainable Industries Branch, "Developing a Product Stewardship Strategy for Electrical and Electronic Appliances in Australia". Discussion Paper. March 2001. http://www.ea.gov.au/industry/waste/ieu/pubs/discussion.pdf.

[25] Bill Vorley, Dilys Roe and Steve Bass, *Sustainable Development and Trade: A Sectoral Study for the Proposed Sustainable Trade and Innovation Centre.* International Institute for Environment and Development (IIED), London. April 2002.

[26] For example, bans on certain substances and (eco-)labelling. Management systems primarily aimed at controlling food safety risks (such as the Hazard Analysis Critical Control Point, HACCP) may also refer to certain environmental issues.

[27] Environmental requirements in the area of forestry products (including paper) include environment-related technical regulations (e.g. restricting the use of bleach in paper, the use of formaldehyde glues in wood

which may find it relatively difficult to respond to stringent environmental requirements, often play an important role in these sectors (see below). Third, developing countries often sell standardized mass-produced products at low prices, for which the introduction of additional production costs significantly erodes competitiveness. A study on Brazil points out that product differentiation is more difficult in the case of homogeneous products, and producers generally find it difficult to recover increased costs required for environmental improvements through price premiums.[31] Fourth, various groups of developing countries are in different phases of industrialization, with a profile of dynamic sectors that differs very much from the post-industrialization stage of most developed economies. Several pollution-intensive sectors are among the most dynamic in various developing countries, whereas they are sunset industries in many developed countries. Although technological leapfrogging by developing countries might attenuate some adverse environmental effects, the structurally different environmental requirements in developed countries remain an issue of concern. Lastly, especially in the commodity sector, which still forms the backbone of many developing countries, in particular the LDCs, it may be more difficult to simultaneously improve environmental performance and international competitiveness because of the declining trend of prices and the relatively high share of environmental management costs in total production costs.

19. Apart from problems related to the complexity, stringency or technical characteristics of certain environmental and health regulations, developing countries face a number of constraints as a result of structural problems. These include lack of awareness and management of information, poor infrastructure, dominance of SMEs in the export sector, lack of finance, and insufficient access to technology and institutional capacity.

20. Most LDCs, for example, have insufficient technical capacity to efficiently manage SPS, food safety and environmental requirements. Typically, essential facilities like laboratories are not adequately staffed, scientific equipment is obsolete for the required tests, and there is no systematic collection and recording of information.[32] In many developing countries this situation is unlikely to improve in the short term, given the declining levels of public expenditure. The high cost of conformity assessment, including testing for thresholds of residues, is also a serious problem. The above-mentioned structural factors may imply high compliance costs for companies in developing countries. In addition, the fact that developing countries often are "standard-takers" rather than "standard-setters" puts them at a competitive

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panels), recycled content in pulp and paper products, and regulations on recycling and recovery of packaging waste. There are also voluntary instruments such as eco-labelling and timber certification.

28 Such as product content requirements and bans on certain substances.

29 Such as bans on the use of certain substances and packaging requirements. Voluntary measures include eco-labelling. In certain cases buyer requirements and private sector initiatives focus on environmental impacts throughout the supply chain

30 See examples on electrical appliances and electronic equipment mentioned in the previous section.

31 De Motta Veiga, P., M. Resis Castilho and G. Ferraz Filho, "Relationships between trade and the environment: the Brazilian case", July 1995. In: Veena Jha, Anil Markandya and René Vossenaar, *Reconciling Trade and the Environment: Lessons from Case Studies in Developing Countries*, Edward Elgar, Cheltenham/Northampton, 1999.

disadvantage. Moreover, standards are often set by developed countries for products in which developing countries are the exclusive or predominant producers, such as tropical beverages, spices or leather.

B. Environmental requirements as non-tariff barriers (NTBs)

21. Studies carried out by UNCTAD and others[33] have identified a number of problems, real and perceived, that may affect market access for developing country exports. For example, certain standards may lack transparency, be overly stringent or complex, have no appropriate scientific justification or fail to take into account the production conditions in developing countries. Lack of transparency includes uncertainty about the scientific justification for certain thresholds and conformity assessment procedures such as prescribed testing methods. Notifications under the WTO TBT and SPS agreements could include some information on the scientific basis and the risk assessment that was carried out to reach a particular standard/threshold value.

22. Stringent environmental standards that require large subsidies to ensure industry compliance in developed countries may have adverse trade effects on developing countries, especially those that lack the financial resources to provide similar support. The literature provides examples of problems linked to certain environmental requirements. These include, for example, distortions caused by recycled content requirements.[34]

23. In certain cases, environmental requirements, in particular those based on PPM-related criteria, fail to take adequate account of the production and environmental conditions in developing countries. For example, a study on Costa Rica revealed that United States specifications for turtle excluder devices (TED) were not adaptable to local conditions.[35] Similar concerns have been raised by other countries, for example in the case of paper products[36] and cut flowers.[37] Eco-labeling is emerging in the fisheries sector, but is relatively

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[32] In India, for example, it took the Government and local industry four years (1997-2001) to establish the testing facilities necessary to comply with the European standards on limits on aromatic amines in textiles coloured with azo dyes.

[33] See, for example: OECD, Joint Working Party on Trade and Environment, "Development dimension of trade and environment, case studies", COM/TD/ENV(2001)95/PART1-PART4.

[34] In the mid-1990s, Canadian exporters of newsprint were forced to import waste newsprint from the United States in order to meet recycled content requirements in the State of California. See J. Grimmett, "The case of recycled content in newsprint", paper presented at an informal OECD experts workshop on Trade and Environment: Issues Pertaining to Processes and Production Methods (PPMs), 6-7 April 1994 (Helsinki, 1994).

[35] This precipitated discussions with the United States on how Costa Rican fishermen could meet US requirements in a way that worked in the Costa Rican Environment. The United Sattes agreed to allow changes in the size of the TED. Max Valverde, *Sanitary and environmental barriers to trade in fisheries. The case of Costa Rica*, July 2001.

[36] See: ABECEL (an association of Brazilian paper exporters), "Eco-labelling of Tissue and Towel Paper Products in the EU: A Brazilian Perspective". In Simonetta Zarrilli, Veena Jha and René Vossenaar, *Eco-labelling and International Trade*, MacMillan Press Ltd, 1997.

[37] Colombian Government, "Environmental labels and market access: case study on the Colombian flower-growing industry", WTO documents WT/CTE/W/76 and G/TBT/W/60.

more expensive and difficult for (and may thus discriminate against) the small-scale artisanal fisheries sector, which, in general, is a sustainable activity.[38]

24. A number of GATT/WTO dispute settlement decisions, while favourable for the Members' ability to protect the environment, indicate that the potential for conflict depends on the particular measure itself and how it is implemented. In the few cases that are relevant, the decisions found that certain environmental measures have been implemented in a discriminatory manner. For example, the GATT Panel on "United States - Taxes on Automobiles" (1994) ruled that the Corporate Average Fuel Economy (CAFE) regulation discriminated against certain foreign cars.[39] Similarly, the WTO Appellate Body ruled that, in the case of "United States - Standards for Reformulated and Conventional Gasoline" (1996) and "United States - Import Prohibition of Certain Shrimp and Shrimp Products"(1998), environmental measures had been applied in a manner inconsistent with the chapeau of GATT 1994 Article XX.[40]

C. The case of small and medium-sized enterprises (SMEs)

25. Many of the difficulties that SMEs encounter in responding to either domestic or external environmental requirements are no different from other problems arising from the characteristics of their business operations. Environment-related requirements, however, may create additional difficulties because of SMEs' limited capacity to raise additional capital, managerial and technological constraints and high costs of compliance.[41] For example, certain installations (such as waste treatment facilities) require a minimum level of operation. Several studies show that operating costs (even for common effluent treatment plants) may be relatively high for SMEs. In addition, environment-friendly input materials, which may represent a considerable portion of total variable costs, may be more expensive for SMEs since they cannot use bargaining power to obtain such inputs at lower prices. Similar findings were highlighted in a study in Brazil.[42]

26. Some of the trends in environmental policies outlined in this report may cause difficulties for small producers. In the area of timber certification, for example, small producers tend to face higher fixed costs and do not always have the necessary formal management and reporting systems. Similarly, private standards, such as the above-mentioned EUREPGAP initiative, have in practice favoured large suppliers over small

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[38] Lahsen Ababouch, Service Chief, Fish Utilization and Marketing Department of Fisheries, FAO, Rome, "Fish Trade, Safety, Quality and Environmental Issues", presentation at the UNCTAD Workshop on Standards and Trade. Geneva, 16 and 17 May 2002.

[39] It has been argued that "Congress intentionally selected the CAFE mechanism to protect auto industry jobs and the automobile market share of the Big Three US automakers". See D.C. Esty, "Greening the GATT, Trade, Environment and the Future", Institute of International Economics, Washington D.C., 1994.

[40] GATT/WTO dispute settlement practice relating to GATT Article XX, paragraphs (b), (d) and (g), Note by the WTO secretariat, WT/CTE/W/203, 8 March 2002.

[41] Government of India, "The effects of environmental measures on market access, especially in relation to developing countries, in particular the least-developed among them", WTO document WT/CTE/W/207, 21 May 2002.

[42] De Motta Veiga, P., M. Resis Castilho and G. Ferraz Filho, "Relationships between trade and the environment: the Brazilian case", July 1995. In Jha, Markandya and Vossenaar, op. cit.

producers and contributed to a drop in the share of smallholders or outgrowers in horticultural exports of certain developing countries.

III. LEVERAGING THE BENEFITS FOR COMPETITIVENESS

A. Competitiveness issues

27. When examining the relationship between environmental requirements and competitiveness, a distinction should be made between: (a) effects at the country level versus effects on specific industries; and (b) short-term and long-term effects.

28. More stringent process standards and regulations may generate economic benefits and more efficient use of resources. However, they may also adversely affect competitiveness at the sector or enterprise level. Whereas, on average, such effects may be modest, in some sectors, particularly in pollution-intensive industries, compliance costs can be significant.[43] Even where compliance costs appear significant in a static analysis, a dynamic analysis may show lower costs, since incentives for innovation and the use of "clean technologies" may result in cost savings over the long term[44]. This would suggest that trade effects could be small. Win-win situations could arise in cases where increased resource efficiency can be achieved or where price premiums can be obtained. [45]

29. Compliance with specific environmental regulations and standards may require specific technologies, which may be protected by intellectual property rights.[46] Standards compliance may therefore require mechanisms for the dissemination of environmentally

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[43] In recycling of used lead-acid batteries, for instance, pollution control, water treatment and waste disposal costs account for about 10 per cent of total production costs. However, this figure does not include the depreciation costs of 'clean' capital equipment. For more information, see: Parker, Thomas H., "The economics of secondary lead smelting", paper presented at the 7th International Recycling Conference of ILZSG, Toronto, 25-29 May 1998.

[44] See the "Porter Hypothesis" in Porter, M, *The Competitive Advantage of Nations,* New York: Free Press .(1990), and Porter, M and C. van der Linde, *Green and Competitive,* Harvard Business Review, September-October 1995, 120-34.

[45] Over three years, Philippine Recyclers Inc. (PRI), a battery recycling company, systematically improved its environmental performance and invested some US$ 80,000 (not counting capital equipment) in achieving ISO 14001 certification in 2001. However, the environmental improvements resulted in net economic benefits through significant savings in resource use and environmental management costs, in the following order: Fuel consumption – 17%; power consumption – 21%; waste generation – 19%; environmental management costs – 20%. Irving C. Guerrero, Vice President and General Manager of PRI, "Environmental management systems, such as ISO 14001, and their possible role in assuring environmentally sound management of recoverable materials/resources – the experience of Philippine Recyclers Inc.", presentation at the first UNCTAD Workshop on Building National Capacity in Rapidly Industrializing Countries on Environmentally Sound Management of Recoverable Material/Resources, Bangkok, 20-22 September 2001, accessible at www.unctad.org/trade_env/.

[46] This may also apply to standards set by MEAs, such as the Montreal Protocol. In this case, however, the Multilateral Fund of the Protocol covers costs for technology transfer or domestic development of ODS substitutes; equipment needed and its installation costs; and training. The fund has so far disbursed more than US $ 1 billion to almost 120 developing countries. This investment has supported about 2,000 projects to phase out some 60 per cent of ODS consumption in developing countries.

sound technologies (ESTs). There is also a clear relationship between technological capacity and the ability to set standards, which accounts for the fact that the majority of the developing countries usually are standard-takers rather than standard-setters.

B. The role of science and technology

30. Aligning environmental and health objectives with competitiveness poses new problems that require scientific and technical familiarity. While risk assessment is ultimately a political decision, improving the capacity of developing countries to conduct risk assessment in the light of their own specific conditions (e.g. climatic conditions) would help them to make their domestic standards more compatible with their local conditions. In cases where standards of developed countries may be inappropriate for local conditions in developing countries, domestic risk assessment based on sound science would be essential. This factor will only grow in importance as developing countries' exports diversify into sectors with higher technological sophistication and value-added, where the proliferation of environmental and health standards and technical regulations may effectively create non-tariff barriers. To deal with these realities, policy makers and trade officials need to be able to tap the best available scientific expertise. UNCTAD, in cooperation with Harvard University, launched the Science and Technology Diplomacy Initiative in June 2002.[47]

C. Environmental goods and services (EGS)

31. To date there is no comprehensive definition of EGS or any internationally agreed criteria for their classification. Where they exist at all, definitions and classifications differ from country to country. The OECD has defined the environmental industry as "activities which produce goods and services to measure, prevent, limit, minimize or correct environmental damage to water, air and soil, as well as problems related to waste, noise and ecosystems".[48]

32. To date, few developing countries have been able to develop an environmental industry of their own, and, when they have, it is largely oriented to the local market. The dominance of developed-country firms in traditional, more mature sectors of the environmental industry, such as wastewater treatment and air pollution, means that it may be difficult for developing countries to compete in these sectors, isolating them from related trade gains. Nevertheless some developing countries may be able to compete in subregional or regional markets where experience of similar environmental problems counts heavily. In the context of the post-Doha work programme, it will be important to examine which EGS sectors of potential export interest to developing countries could benefit from further trade

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[47] The objectives and activities of the Initiative target a number of areas of current diplomatic attention such as international arrangements on technology transfer, biotechnology and trade, managing technological risks and benefits, and standard setting. Environment and health requirements in international trade are one area where the benefits of science and technology diplomacy may turn out to be particularly important (UNCTAD/DITC/TED/12,2002).

[48] OECD, Environmental Goods and Services: The Benefits of Further Global Trade Liberalization, Paris, 2000.

liberalization and how negotiations may affect the development of EGS sectors in developing countries and the ability of these countries to increase their participation in world trade.

D. Environmentally preferable products

33. Growing environmental awareness, in particular in industrialized countries, may create production and export opportunities for "environmentally preferable products" (EPPs).[49] For example, trade in timber is being promoted through standards for sustainable forest management[50] developed by industry, global initiatives aimed at voluntary forest certification, such as the Forest Stewardship Council, intergovernmental initiatives[51] and efforts of timber-producing countries.[52] Standards have also been developed for organic produce. However, as discussed in an UNCTAD expert meeting,[53] developing countries need to overcome a number of production and export constraints to seize such opportunities.

34. These constraints include the need to comply with standards set by the importing country and to reduce certification and transaction costs resulting from multiple standards and certification requirements and complex procedures in importing countries. Small producers may find it relatively more difficult to obtain certification.[54] It follows that comprehensive policies at the national and international levels are required, including in the areas of trade policy, technical assistance and capacity building. Initiatives could be taken aimed at promoting recognition and market acceptance of standards and certification activities in developing countries. There is also a need to promote networking of producers and buyers of EPPs.[55]

35. Experts may wish to build on corresponding recommendations adopted by the Commission at its sixth session[56] and subsequent activities carried out, in accordance with

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[49] Although there is no agreed definition, EPPs could be described as products that cause significantly less environmental harm at specific stage(s) of their life cycle (production/processing, consumption and/or waste disposal/recovery) than similar products or contribute significantly to the preservation of the environment. Generally, EPPs use less natural resources and energy; generate less waste along the life cycle; preserve the environment; and have a lower impact on human and animal health. UNCTAD, "Environmentally preferable products as a trade opportunity for developing countries", UNCTAD/COM/70, 19 December 1995.

[50] In some developed countries, local and national governments have moved away from (tropical) timber bans to timber public procurement policies based on one or more certification schemes. Bill Vorley, et. al, op. cit.

[51] For example, the International Tropical Timber Organization (ITTO) has developed criteria and indicators (C and I) for sustainable forest management (SFM).

[52] Some developing countries, in particular Indonesia (Lembaga Ekolabel Indonesia, LEI), Brazil (CERFLOR) and Malaysia (National Timber Certification Council), have used the ITTO criteria and indicators as a basis for standards used in national forest management certification schemes.

[53] Expert Meeting on Ways to Enhance the Production and Export Capacities of Developing Countries of Agriculture and Food Products, including Niche Products, such as Environmentally Preferable Products (Geneva, 16-18 July 2001). The outcome of the expert meeting outcome is contained in document TD/B/COM.1/41 - TD/B/COM.1/EM.15/3.

[54] In the forestry sector, for example, 85 per cent of the FSC-certified areas are under large-scale operations. Recent efforts to promote group certification are therefore important. Bill Vorley, et. al, op. cit.

[55] Initiatives like the establishment of a Sustainable Trade and Innovation Centre (SITC) are useful in this context. In the timber sector, the WWF has organized a global network of buyers and producers in about 20 countries, developed and developing, to promote FSC standards: the Global Forest and Trade Network.

[56] TD/B/COM.1/L.21, available on http://www.unctad.org/en/docs/c1l21.en.pdf.

these recommendations, by the UNCTAD secretariat.[57] Experts could also identify possible initiatives that could be pursued, for example as a follow-up to the World Summit on Sustainable Development (WSSD) or in the context of the WTO Doha work programme. Some have raised the question of the extent to which the mandated negotiations aimed at reducing or eliminating tariff and non-tariff barriers to EGS are relevant in this context.[58]

IV. DEVELOPMENTAL EFFECTS

A. Environmental standards and sustainable development

36. Whereas environmental requirements that adversely affect market access for developing countries can have a negative effect on development and poverty alleviation, in certain cases the national economy of developing countries may derive longer-term advantages from trade-induced shifts to more stringent standards in terms of greater resource efficiency, higher occupational safety, improved health conditions and less environmental pollution. This has induced many developing countries to adopt proactive policies and introduce stringent national standards and regulations equal or similar to those prevailing in international markets. The Indian Government, for example, has banned the use of azo-dyes and introduced limits on pesticide residues in tea equal to or more stringent than those of international markets. The corresponding benefits also extend to products sold in the domestic market. A different situation arises if compliance with external environmental requirements is considered of limited environmental and developmental benefit to the country of production.[59] Thus, while compliance is necessary to maintain export markets, at times there may be trade-offs between addressing domestic environmental concerns and investing in specific environmental improvements in response to requirements emerging from external markets.

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[57] These include in particular: (a) The Conference on International Harmonization and Equivalence in Organic Agriculture, organized by the International Federation for Organic Agricultural Movements (IFOAM), the Food and Agriculture Organization (FAO) and UNCTAD (Nuremberg, 18 and 19 February 2002); (b) the Policy Dialogue on Promoting Production and Trading Opportunities for Organic Agricultural Products under the UNEP-UNCTAD Capacity Building Task Force (CBTF) on Trade, Environment and Development (Brussels, 21 and 22 February 2002); and (c) the Workshop on Standards and Trade (Geneva, 16 and 17 May 2002), accessible at http://www.unctad.org/trade_env/index.htm.

[58] Potential problems of such an approach include the lack of internationally-agreed definitions of EPPs and the fact that environmental friendliness of products may be based on PPMs, which may affect tariff negotiations. In some cases, however, tariff rate quotas have been used to provide additional market access for organic products, such as sugar. (In the light of high demand for organic sugar, the US Government raised the specialty sugar quota for 2000/2001 to accommodate organic sugar). Peter J. Buzzanell, Executive Director, Peter Buzzanell & Associates, Inc., "Organic Sugar: Short Term Fad or Long Term Growth Opportunity?" For the International Sugar Organization, 9th International Seminar on "Hot Issues for Sugar", 21 November 2000, London, United Kingdom). With regard to non-tariff barriers, certain difficulties developing countries may face in the area of conformity assessment could be addressed.

[59] Principle 11 of the Rio Declaration states that: "States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries".

37. Even where stringent standards may result in longer-term benefits, in several cases adjustment costs may be high, in particular for LDCs. The ability of developing countries to implement certain standards set by foreign markets may be limited by financial and technical constraints. In addition, where standards have to be implemented primarily for export purposes, economies of scale may be difficult to realize. Moreover, Governments in developing countries may find it difficult to subsidize the development of environmentally sound production because of competing claims. Also, adjustment to more stringent standards may have socio-economic implications. For example, it may cause changes in production structures, in particular where SMEs encounter compliance problems. In general, developing countries will be able to move towards higher standards if they have enough opportunities to benefit from trade and develop their economic capacities.

38. It is thus important to evaluate the implications of environmental standards for market access and for the development objectives of developing countries. It is also important to examine how standards can help to improve economic efficiency and competitiveness, including in the agricultural sector, SMEs and the informal sector. It should be borne in mind, in particular in the context of technical cooperation projects, that meeting more stringent foreign environmental standards usually requires the acquisition of new technology, significant investment in testing infrastructure, training of personnel, and better management from the level of procurement of raw materials to packaging and marketing. Investment in infrastructure is often a necessary condition for environmental performance that, once met, helps to reduce the differential costs of compliance with environmental requirements between developing and developed countries. Development and export diversification strategies should pay special attention to the need to comply with increasingly stringent environmental and SPS requirements.

39. Awareness raising is needed on the role of standards for trade and development and on opportunities for win-win situations in developing countries. There is also a need for comprehensive policies in support of the adaptation of international standards or the development of domestic and regional standards in developing countries, taking into account local conditions and needs. Research and development, in particular on science and risk analysis, could help developing countries to move from being standard takers to becoming standard setters, in particular with regard to products that are predominantly produced in developing countries. Developing countries should be assisted in strengthening capacities at the national level to participate effectively in the work of international standard-setting bodies to help promote international standards capable of promoting their development process. As reflected in several MEAs, the implementation of standards addressing global environmental problems should be based on the principle of common but differentiated responsibilities (principle 7 of the Rio Declaration).

B. SME development

40. SMEs play a leading role in developing country economies and often represent a large share of their exports. It is important to ensure that the viability of this sector is not reduced

by difficulties in adjusting to environmental requirements. The gradual phasing in of more stringent standards may therefore be useful. Standards that address environmental and health problems associated with large-scale industrial or intensive agricultural production, in particular in developed countries, may not reflect the production conditions of SMEs in developing countries. Accordingly, a two-tier system of standards and regulations might, in certain cases, be worth considering.

41. As a result of a generally low level of technological sophistication and their characteristics as part of an informal sector, SMEs often make a relatively large contribution to industrial pollution. However, there is significant potential to improve environmental management in SMEs, provided that the proper supporting infrastructure is set up. Many practices that are cleaner than present methods of production are feasible for SMEs, but information on available options and appropriate incentives may be lacking.

42. Support for innovation is crucial. Private sector initiatives, for example in the context of supply chain management strategies, in particular when linked to information sharing, technical assistance and training, may also help SMEs to achieve environmental improvements while enhancing their competitiveness. Some pilot projects to promote the use of environmental management systems, such as ISO 14001, have paid special attention in strengthening cooperation between large and small companies.[60]

C. WTO issues

43. A number of issues raised in this report may be relevant in the context of ongoing WTO discussions on environmental requirements and market access and other issues such as special and differential treatment, notifications, technical assistance and transfer of technology. A key objective of WTO work in this area is to safeguard market access, in particular for products from developing countries. Several studies point to the need to improve internal dissemination of notifications under the WTO TBT and SPS Agreements and information received from international standardization bodies. Developing countries are provided with accelerated access to notifications concerning products of key export interest to them through ISONET.[61] Developing countries have proposed that they should also be given adequate time to adjust to new requirements. WTO Members have agreed to a period of six months between the notification of a measure to the WTO and the entry into force of the measure concerned.[62] Effective technical assistance in the area of standards may require greater emphasis on strengthening capacities to respond to environmental challenges by addressing structural problems identified in this report.

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[60] UNCTAD, "Trade and Investment Impacts of Environmental Management Standards, particularly the ISO 14000 series, on Developing Countries". Report TD/B/COM.1/EM.4/2 of August 1997.

[61] To benefit from this facility, which focuses on voluntary standards promulgated by ISO and the IEC, developing countries have to submit a list of products of key export interest. So far only a few developing countries have taken advantage of this provision.

[62] Developing countries had proposed a period of one year.

V. STRENGTHENING CAPACITIES TO RESPOND TO ENVIRONMENTAL REQUIREMENTS

44. Work carried out by UNCTAD and other organizations has identified a number of possible measures that can be taken to assist developing countries in responding to environmental requirements and taking advantage of new trading opportunities. A number of such measures are indicated below.

A. Developing countries: national and regional policies

45. Governments and the private sector in developing countries could:

- Raise awareness of emerging environmental requirements in government, the private sector and among other stakeholders.
- Improve dissemination of standard-related information to all domestic stakeholders, including notifications under the WTO TBT and SPS Agreements and information received from international standardization bodies, with a view to commenting on them. Furthermore, as already done in some countries,[63] one might consider creating an early warning system for exporters on new and emerging standards in overseas markets.
- Strengthen national and regional institutions to conduct risk analysis and testing; monitor enforcement of standards and carry out certification.
- Support technology, innovation and enterprise development (e.g. innovation through new methods for processing and packaging with greater emphasis given to environmentally friendly production methods and inputs).
- Promote research and development and exchange of information on traditional and environmentally preferable production methods suitable for local conditions.
- Promote business partnerships between foreign and local firms as a means to strengthen capacities to comply with standards and enhance competitiveness;
- Adopt specific measures for SMEs, consistent with WTO rules, such as technological support, support for investment in improving infrastructure and support for certification.

B. The international community

46. Governments and business associations in countries moving towards increasingly stringent environmental and health standards and regulations can take several steps to help avoid unnecessary adverse trade and competitiveness impacts on developing countries with a key export interest in the products or sectors concerned.[64] These include:

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[63] In Brazil, for instance, there is a system run by INMETRO, a standartization institute, called "alerta o exportador".

[64] The OECD project on the "development dimension of trade and environment" is important in this context.

- Extending impact assessments of the domestic competitiveness effects of emerging standards and regulations currently carried out in developed countries to also cover potential effects on key developing country trading partners.[65]
- Giving developing country producers an opportunity to participate at an early stage in the design of environmental requirements and leaving them adequate time to adjust to the new requirements
- Developing suitable mechanisms for information dissemination systems to ensure that changes in environmental measures and standards can be accessed by industries in developing and developed countries. [66]
- Promoting harmonization and mutual recognition of product standards and regulations based on equivalence.

47. Multilateral and bilateral donors as well as international organizations can provide technical assistance and capacity-building programmes that:

- Strengthen developing country capacities to meet environmental requirements and enhance competitiveness by addressing structural problems identified in this report.
- Assist developing countries in their participation in the work of international standardization bodies and in pre-standard harmonization at the bilateral level.
- Analyse and compare best practices on appropriate involvement of key trading partners, in particular developing countries, in setting of environmental standards and regulations in developed countries.
- Establish and improve early warning systems to facilitate responses to changes in standards.
- Improve information flow on standards and technical regulations.

48. Because efforts by donors to promote export-oriented industries are sometimes undermined by barriers to trade in developed country markets, coordinated efforts may be needed to avoid such problems.

49. In the context of the WTO Doha Work Programme, a number of issues could be examined, such as:

- The review of special and differential (S&D) treatment provisions as outlined in paragraph 44 of the Doha Ministerial Declaration. Experts could consider to what extent such a review could also assist developing countries in better responding to environmental requirements.
- An examination of ways to enhance the effectiveness of transparency provisions relating to standards and environmental labelling.

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[65] This idea was discussed at the Global Forum on Trade, Environment and Development (GFTED) and Futuro Latinoamericano, "Achieving More Balanced Market Access: the Role of International Standards", Quito, June 2002.

[66] See proposal made by India in May 2002 in the WTO Committee on Trade and Environment (WT/CTE/W/207).

- A further examination of the scientific underpinnings and technology transfer provisions in relevant WTO agreements.
- An examination of possibilities to facilitate market access for developing country EPPs.

VI. POSSIBLE ISSUES FOR DISCUSSION BY EXPERTS

A. Environmental requirements, market access and competitiveness

50. A number of questions arise. Whereas the first two bullets focus on the experiences of *developed countries,* the last four focus on the experience of *developing countries.*

- What steps, if any, have been taken or are envisaged to involve developing country trading partners in setting environmental standards and regulations or criteria for eco-labelling programmes?
- What measures have been taken or are foreseen to mitigate possible negative effects of environmental requirements on the market access and competitiveness of developing country trading partners?
- Have environmental requirements in external markets had effects on your country's exports? If so, in which sectors?
- What are the major constraints in responding to environmental requirements in external markets?
- How can these constraints be best overcome?
- Have environmental requirements in export markets resulted in changes in the domestic market and production structure?

B. Trading opportunities and developmental effects

51. Key questions are:

- Have environmental requirements in external markets led to concrete trading opportunities in your country? If so, in which products?
- What positive effects of environmental requirements have you seen in your country, e.g. improved environmental quality, cost savings due to rationalized use of natural resources, spill-over health and social effects?

C. Strengthening capacities

52. The following main questions arise:

- What are your national experiences, in particular with regard to suggestions listed in this report (section V above)?

- What are your country's specific capacity building needs and priorities?
- What technical assistance is currently being implemented in your country?
- What role could UNCTAD play, working in close cooperation with other institutions and the private sector?

D. The WTO Doha Work Programme

53. Experts may elaborate on the following question:

- How can WTO Members ensure that the post-Doha work programme concerning standards truly reflects the development dimension?